

CHALLENGES IN DESIGNING VERY SMALL TURBOJET ENGINES - FUEL DISTRIBUTION AND ATOMIZATION

F. Fuchs^{1,2}, V. Meidinger¹, N. Neuburger¹, T. Reiter¹, M. Zündel¹, A. Hupfer²

¹ HUMMINGBIRD – TUM GAS TURBINES
Technische Universität München, 85748 Garching, Germany
info@hummingbird.tum.de

² Institute for Flight Propulsion
Technische Universität München, 85748 Garching, Germany
fabian.fuchs@lfa.mw.tum.de
hupfer@lfa.mw.tum.de

Abstract

The contents of this publication deals with experimental and numerical investigation of combustion chambers used in very small turbojet engines in the thrust range less than 1000 N. The Institute for Flight Propulsion of the Technische Universität München (TUM) in cooperation with the student research group 'Hummingbird – TUM Gas Turbines' operates several test rigs for very small turbojet engines and their components. One special test rig offers the opportunity to investigate standalone combustion chambers without influencing factors of other gas turbine components. During the last years a plurality of investigations about the operating behavior and its characteristics regarding the fuel distribution, atomization and combustion has been carried out. The findings resulting from the experimental investigations are also used as a validation basis for numerical investigations - a precondition for further optimization in designing combustion chambers of very small turbojet engines.